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Original Research Paper

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DOCUMENTING THE SERUM VITAMIN D LEVELS IN POSTMENOPAUSAL FEMALES OF RAIPUR ,CHHATTISGARH

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ABSTRACT

Background: Indian females live a life style where societal norms mandates them to cover most of their body parts , stay indoors mostly and the fair color obsessed Indian inside urges them to avoid direct sunlight which are aided by application of various sun screens . Coupled with a dietary pattern bereft of animal source of protein and low vitamin D intake their health is always at stake for having Low Vitamin D levels or vitamin D Deficiency.

Aim and Objectives-document the presence of serum Vitamin D levels prevalent in post-menopausal urban population in Raipur.

Methodology- The present study was done in AIIMS Raipur after taking due clearance from appropriate authority .. A total of 78 females were evaluated. With 2ml of venous blood collected using aseptic measures , serum levels of vitamin D3 were classified as levels of <20ng/ml-Vitamin D deficiency, levels of 20-30ng/ml–insufficiency , when levels were >30mg/ml–sufficiency over four months

Results: 80% of females were suffering from vitamin D deficiency , (66.67%) had sun exposures less than 30 minutes a day while some didn't had any exposure at all (8.33%) , this exposure rate was found to be significant. Conclusion Despite the popular belief of Chhattisgarh to be sunny area presence of Vitamin D deficiency is very much there . Post menopausal females need to understand the implications of keeping themselves away from sunlight . Supplement of VitaminD is one option but is it enough to replace sunlight ??? More research will give the answer .

KEYWORDS :

INTRODUCTION

Deficiency of Vitamin D in the form Vitamin D3 available inside the body is taking up epidemic proportions. WHO terms its deficiency as one of the major contributors of Micronutrient deficiency. More concerning is the fact that all this is happening contrary to the popular belief of India being a sunlight rich country or tropical country (1,2) Reasons to explain this deficiency has been theorized as melanin abundance in dark skin thus by providing a natural sun screen owing to lesser absorption in comparison to Caucasian population . As the recognition is new more concern is regarding pediatric population as government is being advised about initiating food fortification programs which are intended to cater the needs of pediatric population and of reproductive health group .(3,4,5) .

However Indian females live a life style where societal norms mandates them to cover most of their body parts , stay indoors mostly and the fair color obsessed Indian inside urges them to avoid direct sunlight which are aided by application of various sun screens . Coupled with a dietary pattern bereft of animal source of protein and low vitamin D intake their health is always at stake for having Low Vitamin D levels or vitamin D Deficiency (6, 7) Role of Vitamin D in human health has been researched for long and its hormonal nature has been attributed to control intestinal calcium absorption, bone growth , remodeling , regulation of cell apoptosis In post-menopausal females as their bones are more prone to damage owing various factors their bone health is always at risk .(8,9) Its role is important in healthy bone. Of late a level of serum 25- hydroxyvitamin D less than 30ng/ml (>75 nmol/L) is deficiency while levels >150ng/ml (>374nmol/L) has been accepted as toxic levels. (10)

Data regarding the presence of serum vitamin levels in urban population of females in particular post-menopausal one are scarce. Keeping this in view a study was conceptualized with an aim to document the presence of serum Vitamin D levels prevalent in post-menopausalurban population in Raipur.

METHODOLOGY

The present study was done in AIIMS Raipur after taking due clearance from appropriate authority. The post-menopausal females either coming in OPD of Orthopedics ward or OPD gynecology ward with either backache or for routine checkups were selected. This study was a cross sectional observation study done over a time period of four months. A questionnaire was prepared focusing on various objectives of the study. Inclusion criterion included women aged more than 40 and not greater than 60 years and willing to participate in the study. Those selected in the study were offered lab vitamin D3 estimation available in the hospital. A total of 78 females were evaluated. With 2ml of venous blood collected using aseptic measures , serum levels of vitamin D3 were classified as levels of <20ng/ml-Vitamin D deficiency, levels of 20-30ng/ml–insufficiency , whenlevels were >30mg/ml-sufficiency. Data analysis was done using MS Office Excel Templates and is presented as percentages and fraction. While chi square tests were employed to find association between results. A p value <.05 was considered to be statistically significant. For various tests of association SPSS version 18.0 was used.

RESULTS

In our study we ad majority of females in the age group of 40-45 years (35.90%) while age group of 55-60 was least in numbers . (Table 1).

Table 1 Description of the study population

Age Group	Numbers	Percentage
40-45	28	35.90
45-50	23	29.49
50-55	19	24.36
55-60	8	10.26

We evaluated the serum Vitamin D 3 levels and found almost 80% of females under evaluation to be suffering from vitamin D deficiency while only 6 females were having sufficient vitamin D levels in their serum. On comparing the means of the number of various levels of vitamin D in serum we saw that to be significant with p value <.05 (Table 2) As sunlight is the best source for body to synthesis Vitamin D we asked the participants particularly those who were having deficiency and insufficiency about their sunlight exposure including

exposure to their face and arms. We found maximum (66.67%) had sun exposures less than 30 minutes a day while some didn't had any exposure at all (8.33%) , this exposure rate was found to be significant in our study population implying low vitamin D levels being affected by sun exposure .(Table 3)

Table 2. Number of females of postmenopausal age having various levels of serum Vitamin D3 levels

Serum Levels of Vitamin D3	Levels according to Classification	Number of Patients n=78	Percentage (%)	P value
Vitamin D Deficiency	<20 ng/ml	62	79.49	.03
Vitamin D Insufficiency	20-30 ng/ml	10	12.82	
Vitamin D sufficiency	>30ng/ml	6	7.692	
Vitamin D Toxicity	150 ng/ml	0	0	

Table 3. Sun Exposure duration and Vitamin D deficiency (n=72)

Exposure to Sun	Duration	Numbers	Percentage	p value
Sun exposure	<30 minutes per day	48	66.67	0.04
	30 minutes per day	18	25.00	
	No exposure	6	8.33	

Sun screen application on face and arms were also probed for participants with low levels of Vitamin D3 when they were out in the sun. All 72 participants were applying sun screen and maximum (64%) were applying it on face and arms. (Fig 1)

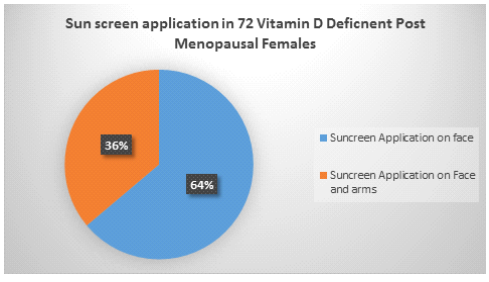

Fig 1 . Sun screen application in 72 Vitamin D Deficient Post Menopausal Females

DISCUSSION

In our study we found the problem of Vitamin D deficiency quite evident and females in the post-menopausal age group owing to various societal norms are unknowingly avoiding direct sun light compounding to their poor bone health . As studies have documented elsewhere application of sun screen has been a known cause of low vitamin D levels . (10,11) . The common consensus of at least direct noon sunlight more than 30 minutes has been given by FAO and WHO long back but people still don't adhere to it . (12)

CONCLUSION

Vitamin D an essential hormone is easily available in the form of unadulterated sunlight, Owing to prevailing societal norms , customs etc. females in India more than 4o years are avoiding it . They are prone to poor bone health owing to their post-menopausal effects and low Vitamin D compound to that problem. Post-Menopausal females must understand the importance of sunlight and try it for 30 minutes a day without applying sunscreen or other barriers.

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